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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,868	08/16/2005	Naofumi Ezawa	Q83993	9791

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EXAMINER	
KNABLE, GEOFFREY L	

ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
09/16/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/509,868	EZAWA, NAOFUMI	
	Examiner	Art Unit	
	Geoffrey L. Knable	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 July 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 7/6/2009 has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 10-297209 to Hattori taken in view of JP 2001-260609 to Yamamoto et al. and Taguchi et al. (US 2002/0134480).

JP '209 (machine translation was previously provided) disclose a tire having an innerliner layer (5), a carcass layer (4) and two additional layers (6a/A, 6b/B) between the carcass and innerliner. Further, a cobalt compound is included in the rubber layer 6a/A (adjacent the carcass; corresponds to claimed layer "B") as well as in the carcass rubber layer (e.g. paragraphs [0002] and [0006] of the machine translation indicating that cobalt is included in the carcass ply as typical for cord adhesion). Sulfur is also included in the layer 6a/A (corresponding to the claimed layer "B") and it would have been implicit or certainly obvious to include sulfur in the rubber of the carcass layer, as typical. Note also that the first sentence of paragraph [0006] of JP '209 seems to indicate that the carcass ply coating rubber can be the same as that of the rubber layer

6a/A (claimed layer "B"), this further suggesting that sulfur be included within the carcass ply rubber as well as that the sulfur in the carcass can equal that in the adjacent layer (i.e. $S_B=S_C$ using the claim terminology). As to the relationship between the sulfur in the layer 6a/A and 6b/B, JP '209 suggests that the sulfur blended in the rubber layer 6a/A (claimed layer "B") is "usually 4 - 7 weight section" (paragraph [0007]) and with respect to the sulfur blended in the layer 6b/B (claimed layer "A"), JP '209 suggests that "[t]here are few especially sulfur loadings than the loadings of the rubber layer A, and it is [sake / on a degradation-proof disposition] desirable to consider as 3 - 5 weight section to the rubber part 100 weight section" (paragraph [0007]). JP '209 is therefore read as disclosing that the sulfur loading in the layer 6b/B is lower than that in layer 6a/A (i.e. $S_A<S_B$ using the claim terminology). As to the newly claimed range for S_A of 2-2.5, although JP '209 suggests 3-5 parts, this is apparently only a preferred or desirable range, it being therefore obvious to use other amounts that would also predictably provide suitable and effective results.

Along these lines, JP '609 (machine translation was previously provided) is also directed to a tire including an innerliner to be bonded to a carcass through an intermediate ply and in particular suggests that to ensure sufficient adhesion between plies, the sulfur content in the intermediate layer adjacent the carcass should be less than or equal to that in the carcass ply and greater than that in the adjacent layer, with sulfur amounts in the intermediate layer being 1-3%, preferably 2-2.6% - e.g. paragraphs [0019], [0025]-[0029]. This would suggest to the artisan the desirability of providing a gradation in sulfur contents from the carcass ply inward in order to in part

minimize the "shift" or migration tendency of sulfur from the carcass towards the adjacent layers. Taguchi is likewise directed to a tire having an innerliner as well as a layer intermediate the carcass and the innerliner and stresses the importance of appropriately controlling the amount of sulfur in the intermediate layer. In particular, Taguchi evidences an understanding that the carcass rubber typically has a high sulfur content (e.g. paragraph [0004]) and that the innerliner typically has a relatively low amount of sulfur (0.1-2 phr - paragraphs [0027] and [0036]) and that the adjacent/intermediate layer (analogous to layer "A" in the claim) should have a controlled amount of sulfur that is not so high that it excessively migrates to the liner and raises its modulus and not so low that the bonding is insufficient, amounts generally within the claimed range being shown to be suitable and effective (e.g. paragraphs [0027]-[0031], Table 2). Note that inclusion of a cobalt compound is also suggested (e.g. paragraph [0037]). Given that the inner liner typically has a low sulfur content of 0.1-2 phr and the carcass typically has a high sulfur content, and that the layers should have a gradation in sulfur contents, providing the first intermediate layer adjacent the inner liner to have a sulfur content greater than that of the inner liner and within the claimed 2-2.5 range would have been expected to provide suitable and effective results as it would provide a gradation from the amount of sulfur within the liner while also being consistent with the preferred 2-2.6 range suggested by JP '609 for a layer located adjacent the inner liner. Providing the ply adjacent the innerliner with controlled amounts of sulfur consistent with the claimed requirements would therefore have been obvious and provided only the expected and predictable results.

As to the claimed elongation at break, providing a gradation in sulfur content would reasonably be expected to lead to reduced modulus and increasing elongation with reduced sulfur content - note also Taguchi, last sentence in paragraph [0027] which suggests the known relationship between the amount of sulfur and the modulus of the rubber.

A tire as required by claim 1 is therefore considered to have been obvious. As to claim 2, JP '209 suggests 4-7 parts in layer 6a/A, corresponding to the claimed layer "B". As to claim 4, JP '209 (esp. paragraphs [0006] and [0010] of the machine translation) suggest that the carcass and the two intermediate layers can be natural rubber based. Taguchi likewise suggest natural rubber is typical for a carcass (paragraph [0004]) and also uses natural rubber for the intermediate layer in the examples.

4. Applicant's arguments filed 7/6/2009 have been fully considered but they are not persuasive.

Applicant has argued that paragraph [0007] of JP '209 teaches away from using less than 3 parts sulfur in layer A. As noted in the statement of rejection, however, this is only a preferred range, the reference more broadly suggesting that the sulfur be less than the next adjacent layer (applicants' layer "B"), it being obvious to utilize a sulfur amount as claimed when JP '209 is read in view of the applied secondary references for the reasons detailed above in the statement of rejection.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey L. Knable whose telephone number is 571-272-1220. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Geoffrey L. Knable/
Primary Examiner, Art Unit 1791

G. Knable
September 14, 2009